



Space Science & Astrobiology Division Seminar

First Science with JouFLU: long-baseline optical interferometry and exo-zodiacal dust

Nic Scott, Georgia State University, Astrophysics Branch (SSA) Visitor

N245 Conference Room 215

Thursday, October 22, 2015, 3:30pm

Point of contact: Melinda.A.Kahre@nasa.gov

Abstract: Jouvence of FLUOR (JouFLU) is a major overhaul of the FLUOR (Fiber Linked Unit for Optical Recombination) beam combiner for long-baseline optical interferometry. FLUOR was built by the Laboratoire d'études spatiales et d'instrumentation en astrophysique (LESIA) and installed at the CHARA Array on Mount Wilson, CA. These upgrades improve the precision, observing efficiency, throughput, and integration of FLUOR with the CHARA Array as well as introduce new modes of operation to this instrument. Such high precision observations with FLUOR have provided the first unambiguous detections of hot dust around main sequence stars, showing an unexpectedly dense population of (sub)micrometer dust grains close to their sublimation temperature of around 1400 K. Competing models exist to explain the persistence of this dust; some of which suggest that dust production is a punctuated and chaotic process fueled by asteroid collisions and comet infall that would show variability on timescales of a few years. By re-observing stars from the exozodiacal disks survey we have searched for variations in the detected disks, finding that for some stars the amount of circumstellar flux from these disks, or exozodis, has indeed varied. Exozodi flux has increased for some systems, for others the flux has decreased, and for a few the amount has remained constant. These results are intriguing and will be no doubt useful for future modeling of this phenomenon.